Docket No.: 09626/000L207-US0
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Tetsuya ATSUMI, et al.

Application No.: 09/193,928 Art Unit: 3711

Filed: November 17, 1998 Examiner: S. L. BLAU

For: LIGHT-WEIGHT SHAFT FOR GOLF CLUBS

REPLY BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Reply Brief is responsive to the Examiner's Answer mailed May 4, 2004 and is submitted in triplicate. A Request for Oral Hearing is submitted concurrently herewith.

No fee is believed due with this Reply Brief. If, however, any fee is due, the Commissioner is authorized to charge it to Deposit Account No. 04-0100.

In response to the Examiner's Answer of May 4, 2004, Applicants respectfully request that the Examiner acknowledge receipt and entry of the following reply, or alternatively, withdraw the final rejection and pass the case to issuance.

In response to the Examiner's Answer, Applicants submit herewith a Declaration from the Inventors submitting test results of the claimed golf club shaft, which is enclosed herewith as Exhibit A, following the agreement with the Examiner to accept the Declaration in the telephone

interview of June 11, 2004. Furthermore, in the Examiner's Answer, the Examiner has not properly considered the evidence of non-obviousness provided by the Appellants.

I. Declaration By The Inventor

Applicants thank Examiner Blau for the courtesies extended to Louis DelJuidice in the telephone interview of June 11, 2004 wherein the prior art of record and the claims were discussed.

A Declaration by the Inventors submitting test results of the claimed golf club shaft is enclosed herewith as Exhibit A. The test results are included in Exhibit A, Table 1. This Declaration is a modified version of a Declaration by the same Inventor that was submitted January 21, 2004 in response to an Office Action for U.S. Patent Application No. 09/473,495 (hereinafter "the '495 application"), the divisional application of the present application. The present Declaration is directed to a light-weight golf club shaft, instead of a method for forming a golf club shaft, which is claimed in the '495 application.

This Declaration was not presented earlier, since it had been written for the purpose of being submitted during prosecution of the '495 application, but before the perfection of this appeal. In the statement of reasons of allowance of the '495 application, mailed April 23, 2004, the Examiner stated the following:

> The prior art references of record failed to suggest, disclose, or teach the specific golf club shaft construction of the claimed invention... this construction provided the unexpected benefit of high strength and flexibility while maintaining a shaft weight between 30 and 40 grams. As set forth in Tables 1 and 2 of the original disclosure and the declaration submitted on January 21, 2004, the inclusion of a second angled layer satisfying the limitations of the claimed invention resulted in a golf club shaft exhibiting increased strength without a corresponding increase in shaft weight (each shaft has the same weight).

Applicants thank the Examiner for agreeing to enter and consider the Declaration, as stated in the telephone interview of June 11, 2004.

Table 1 discloses that a 37-gram club of the present invention can provide a torsional strength of at least 120 kgf x m x degrees. The Declaration states that the improvement in the strength and flexibility of a lightweight golf club shaft as shown in Table 1 was unexpected and surprising.

II. Cheng Does Not Disclose Alternating Layers Of Parallel And Angled Layers

The Examiner contends that Cheng states that the base rod is formed of typically 10-20 layers with each successive base rod layer including the sequence of base layers 22a, 22b, and 22c, where layer 22a is parallel and layers 22b, 22c are angled. The Examiner also states that Cheng discloses that the fibers of successive base rod layers may be parallel to each other and that this represents an alternative layer pattern.

However, Cheng does not disclose that the base layers 22a, 22b, 22c are layered sequentially, i.e., at least two sequences of base layers 22a, 22b, 22c on the mandrel. Therefore, Cheng does not disclose a second angled layer and a second straight layer.

Cheng discloses that multiple (preferably 10-20) layers are wrapped around a mandrel and that one layer 22a is parallel to the longitudinal axis of the base rod, and two layers 22b, 22c are angled with respect to the longitudinal axis of the base rod. Furthermore, Cheng discloses that successive layers may be formed parallel to one another. However, Cheng does not disclose that these layers are formed so that there are at least two sequences of the three layers 22a, 22b, 22c. Cheng only discloses that the first 5-10 layers may be angled layers of alternating orientations and that the next 5-10 layers may be parallel layers that are parallel to the longitudinal axis. Cheng also discloses that a parallel layer 22a may be disposed next to another parallel layer 22a. Thus, the parallel base layer 22a can be layered over another parallel base layer 22a. Cheng does not disclose that a pair of angled layers and a parallel layer can be placed over the set of parallel layers.

If the first 5 layers are angled layers and the second 5 layers are parallel layers, the 10-layered shaft would not include a second angled layer and a second straight layer since Cheng

does not disclose that additional sets of layers are placed over the angled layers and parallel layers in alternating arrangement. Alternatively, if the first 10 layers are angled layers and the second 10 layers are parallel layers, the 20-layer shaft would not include a second angled layer and a second straight layer since Cheng does not disclose that additional sets of layers are placed over the angled layers and parallel layers. Therefore, Cheng does not disclose a second angled layer and a second straight layer on top of the first angled layer and first straight layer.

III. JP '131 and JP '840 Do Not Provide Motivation To Modify Cheng's Or Jackson's Golf Club To Provide A Lightweight Golf Club With A Suitable Torsional Strength

In the Examiner's Answer, the Examiner states that there are different variables for determining the torsional breaking load and that Kobayashi discloses why shafts with different torsional and bending stiffnesses are needed. The Examiner states in item 19 of the Examiner's Answer:

> There are variables available to one skilled in the art as types of prepreg, number of layers, thickness, and diameters which would determine the torsional breaking load of the shaft of Cheng where the teaching of Kobayashi would be utilized. [JP '131] showed a suitable torsional breaking load value as is the claimed value.

Thus, the Examiner states that JP '131 discloses a torsional breaking load that lies within the claimed range of torsional breaking loads. The Examiner states that there are different variables, e.g., types of prepreg, number of layers, thickness, and diameters, for determining the torsional breaking load, and that JP '131 shows a suitable torsional breaking load. Furthermore, the Examiner contends that it would be obvious in view of JP '131 to modify Cheng's or Jackson's golf club shaft to provide increased torsional strength.

The Examiner states that the different variables, e.g., types of prepreg, number of layers, thickness, and diameters, determine the claimed torsional breaking load. However, one cannot determine the values of these variables simply based on knowledge of the torsional breaking load. Therefore, since JP '131 simply discloses a torsional breaking load and not the claimed elements of the golf club shaft for producing the torsional breaking load, there is no motivation

to modify Cheng's or Jackson's golf club shaft to provide the claimed torsional strength. As stated by the Examiner, JP '131 provides a golf club shaft having a torsional breaking load of 230 kgf cm. However, JP '131 does not disclose or suggest the claimed elements of the golf club shaft that produce the claimed torsion strength of the present invention.

Furthermore, there is no motivation to use JP '131 to modify Cheng's or Jackson's golf club to produce the claimed invention since JP '131 does not disclose the thickness or the weight of the prepreg or the weight of the resulting shaft. JP '131 does not disclose a golf club shaft that is the same weight class as the golf club shaft of the present invention. As stated by the Examiner, JP '131 discloses a golf club shaft with a certain torsional breaking load. However, JP '131 only suggests that one may construct a shaft using the specific described method *without any specific regard to weight* in order to provide the disclosed torsional breaking load. Since it is well known that a larger shaft will often have an increased torsional strength *with a significant increase in weight of the resulting shaft*, there is no motivation to use JP '131 to modify Cheng's or Jackson's golf club to produce a lightweight shaft with the torsional strength of the present invention. The Examiner is improperly selecting disparate parts from the references to "piece together" the presently claimed invention using hindsight.

The Examiner also contends that JP '840 provides the motivation to modify Cheng's or Jackson's golf club to produce a golf club shaft with the claimed weight. However, JP '840 only suggests that one may construct a shaft using the specific described method *without any specific regard to torsional strength* in order to provide the disclosed weight. Since it is well known that a smaller shaft will often have a light weight *with a significant decrease in torsional strength of the resulting shaft*, there is no motivation to use JP '840 to modify Cheng's or Jackson's golf club to produce a lightweight shaft with the torsional strength of the present invention. The Examiner is again improperly selecting disparate parts from the references to "piece together" the presently claimed invention using hindsight.

The present invention is specifically directed to providing a light weight shaft while maintaining the torsional strength of heavier golf club shafts. The Declaration of the Inventors

submitted herewith describes how the improvement in the strength of the lightweight golf club shaft of the present invention was unexpected and surprising. As stated on page 4, lines 11-14, of the Specification:

> It is yet another object of the present invention to overcome the problems of the prior art and to provide a shaft that is 35 - 50% lighter than a conventional shaft while maintaining the outer diameter, flexural rigidity, flexural strength, torsional rigidity, and torsional strength of a conventional shaft.

Table 1 of the Declaration from the Inventors enclosed herewith describes a 37 gram club of the present invention having a torsional strength of 147.5 to 179.3 kgf x m x degrees. JP '131 discloses shafts that can withstand a 98 to 253 kgf x cm torsional breaking load, but JP '131 does not disclose the weight of the shafts. JP '840 discloses shafts weighing 10 to 50 grams, but does not disclose the torsional strength of the shafts. Thus, the present invention provides a light weight shaft that retains the torsional strength of heavier golf club shafts, which is unmatched by any of the prior art golf club shafts. It is not obvious to combine the teaching of JP '131 with JP '840 to get a lighter and stronger club as claimed since each reference teaches improving a single characteristic of the golf club shaft, but neither reference teaches or suggests providing a lightweight and strong club. Thus, there is no motivation to apply JP '131 or JP '840 to Cheng or Jackson to provide a lightweight shaft while maintaining the same torsional strength as a heavier shaft.

IV. Kusumoto Does Not Provide Motivation To Modify Jackson's Golf Club

Jackson discloses using fiberglass to form a golf club shaft. The Examiner contends that Kusumoto discloses the thicknesses for prepreg sheets for forming shafts and that it would be obvious to use Kusumoto's specified prepreg sheet thickness to modify the thickness of Jackson's fiberglass layers. The Examiner states in item 15 of the Examiner's Answer, "The end product of forming a shaft using prepreg sheets or winding fiber directly to a mandrel using a binder has the same end result."

However, the shafts formed using these two different materials have different properties, as described in Appellants' Appeal Brief. For example, fiberglass has different torsional strength and weight properties than prepreg. The use of fiberglass in Jackson's golf club is not equivalent to the use of prepreg in Kusumoto's golf club especially when evaluating the resulting torsional strength and weight properties. Kusumoto suggests that one may construct a shaft using the specific described method *without any specific regard to torsional strength or total weigh of the shaft* in order to provide the disclosed thickness. Thus, there is no motivation to use Kusumoto's layer thicknesses to modify Jackson's fiberglass golf club to produce a lightweight shaft with the torsional strength of the present invention. The Examiner is again improperly selecting disparate parts from the references to "piece together" the presently claimed invention using hindsight.

Based on the foregoing, in conjunction with Appellants' Appeal Brief, Appellants respectfully submit that the rejection of the claims should be reversed and the claims should be granted the benefit of the filing dates of each priority document.

Dated: July 6, 2004

Respectfully submitted,

By _____
Louis J. DeJuidice
Registration No.: 47,522

DARBY & DARBY P.C.
P.O. Box 5257
New York, New York 10150-5257
(212) 527-7700
(212) 753-6237 (Fax)
Attorneys/Agents For Applicants